

## REMARKS

By this amendment, claim 5 is canceled, claim 8 is revised, and arguments are made to place this application in condition for allowance. Currently, claims 1-4 and 6-9 are before the Examiner for consideration on their merits and claims 10-17 are withdrawn from consideration.

Applicant traverses the rejection of the claims on the grounds that the Examiner has not established a *prima facie* case of obviousness.

In review, claims 1-9 stand rejected under 35 U.S.C. § 103(a) based on the combination of United States Patent No. 6,375,014 to Garcera et al. (Garcera) when taken with United States Patent No. 7,247,370 to Childs et al. (Childs) and either United States Patent No. 6,499,606 to Grangeon or United States Patent No. 5,505,841 to Pirbazari et al. (Pirbazari). Garcera teaches a macroporous support that has an impregnated portion of the support, which has lower porosity than the remaining part of the support. The Examiner admits that there is no separator layer on the inside surface of the support of Garcera nor does the impregnation extend from the inner surface of the support.

The Examiner attempts to remedy the deficiencies in Garcera by citation to Childs and Figure 5 thereof, and the teaching that a pore filling gel can be used on either side of the membrane.

In making the rejection, the Examiner asserts that Garcera and Childs are combinable because they are in the same field of endeavor, namely pore filling of porous membrane supports.

The Examiner concludes that "it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the partial pore filled membrane structure of Garcera et al. by making it such that the partial pore filling occurs from the inside of the membrane to the outside as taught by Childs et al. for the purpose of decreasing the amount of fouling experienced by the membrane during operation."

Grangeon or Pirbazari is relied upon to teach the presence of a separator layer and with this, the Examiner concludes that it would be obvious to use the separator layer of Grangeon or Pirbazari in the support of Garcera. As with Childs, the Examiner contends that Garcera and Grangeon are in the same field of endeavor and are properly combined.

Applicant submits that the Examiner has committed error in concluding that Garcera and Childs are combinable because they relate to pore filling of porous membrane supports. In fact, the technologies of Garcera and Childs are entirely different and are not combinable because of their fundamental differences.

Referring to col. 1, line 65 to col. 2 line 7, Childs states "The present invention is concerned with pore-filled membranes, not thin film membranes. It should be stressed that there is a fundamental difference between thin film and

pore-filled membranes. The separating or active layer in thin film membranes is typically a dense layer that is formed on the top of the support membrane. This dense layer faces the feed solution. In pore-filled membranes, a low density, cross-linked gel is contained within the pores of a microporous substrate and serves as the separating layer."

Childs' own teachings demonstrate that the pore-filled membranes are not the same as thin film membranes such as that taught by Garcera. This means that the Examiner's conclusion that the teachings of Childs can be applied to modify the support of Garcera is based not on what one of skill in the art would understand but only by hindsight based on knowledge of the Applicant's invention. The Examiner's conclusion that Childs and Garcera are combinable is directly refuted by Childs' own teachings and this means that the Examiner has committed error in concluding that the teachings of Childs can be applied to Garcera.

Another significant difference that weighs against the Examiner's reliance on Childs to modify Garcera is the use of an organic gel in organic membranes of Childs. The use of an organic gel in an organic membrane is very different from the use of the inorganic particles employed by Garcera for modifying the permeability of an inorganic support. In addition, the implementation of the two permeability-modifying components are quite different. This is another reason that the Examiner cannot baldly conclude that because Childs uses an organic gel in an organic membrane and positions the gel on either the feed side or away from the feed side

means that one of skill in the art would modify the arrangement of the inorganic particles used in Garcera in the same way.

Another difference weighing in favor of the patentability of claim 1 is that Childs is concerned with flat membranes and Garcera is concerned with tubular membranes. In Childs, there is no teaching of a modification closed to the internal surface of each channel as there is no channel in the membranes to speak of. In Garcera, there is no concern with a modification of the support for each channel. Garcera only makes a single modification to the support for all of the channels.

It is also important to view Figure 1 of Childs. Here, the difference between the pore-filled and thin film membrane is shown. Childs is the pore filled membrane whereas Garcera is the thin film membrane with the dense separating layer. In Childs, the support is modified, whereas in Garcera, the modification relates to the creating of the more dense outer separation layer. With these divergent approaches, why apply the teachings of Childs with respect to an organic gel in an organic membrane to a support that utilizes inorganic particles to alter the porosity of the outer layer of the support as is done in Garcera? The teaching of Childs is a clear rebuttal of the Examiner's allegation that Garcera and Childs are similar to each other to support the rejection. What the Examiner is doing is ignoring this clear teaching away from Childs and engaging in the hindsight reconstruction of the prior art in light of Applicant's own disclosure.

Turning now to the presence of the inner separator layer and reliance on either Grangeon or Pirbazari, neither of these two references makes up for the deficiency in the rejection based on Garcera and Childs. Thus, even if these references were properly combined with Garcera, a *prima facie* case of obviousness would still not exist and the rejection would have to be withdrawn.

The rejection based on either Grangeon or Pirbazari fails since it does not take into account that Childs teaches away from using a separator layer as claimed. Childs teaches that the separator layer should be integrated into the support so that there would be no reason for an additional separator layer. Therefore, one of skill in the art would not find it obvious to alter Garcera even if the use of separator layers are known.

To recap, the rejection is improper for the simple reason that the Examiner has erred in equating the teaching of Childs and Garcera in order to modify Garcera and include the feature of the invention regarding the position of the pore filling. The rejection is also improper on the grounds that Childs teaches away from the reliance on Grangeon and Pirbazari to modify Garcera and include a separator layer. Even if Grangeon and Pirbazari were combined with Garcera, the limitation regarding the partial pore filling extending from the inner surface of the support is still missing since Childs is not properly combinable with Garcera.

Lastly, Applicants submit that since claim has a technical concept that is patentable over the prior art and that this technical concept is in claim 10, the

restriction requirement should be withdrawn and claims 10-17 rejoined with claims 1-4 and 6-9.

In light of the above, the Examiner is respectfully requested to examine this application and pass all pending claims onto issuance.

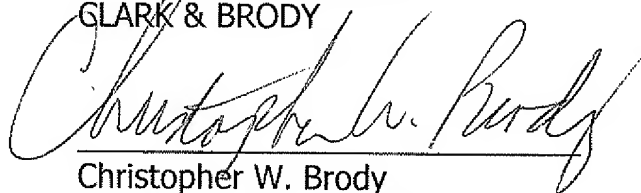
If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated February 6, 2009.

Again, reconsideration and allowance of this application is respectfully requested.

Applicant respectfully submits that there is no fee required for this submission, however, please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,  
CLARK & BRODY

A handwritten signature in cursive script, reading "Christopher W. Brody", written over a horizontal line.

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